

CLAIMS

1. A method for processing blocks of audio information arranged in frames, each block having content representing a respective time interval of audio information,

5 wherein the method comprises:

(a) receiving an input signal conveying the blocks of audio information;

(b) obtaining two or more measures of quality such that:

(1) each set in a plurality of sets of groups of the blocks in a respective frame has an associated measure of quality,

10 (2) each group has one or more blocks,

(3) each set of groups includes all blocks in the respective frame and no block is included in more than one group in each set, and

(4) the measure of quality represents excellence in results obtainable by processing each block in a respective group according to an associated set of one or more control parameters;

15 (c) analyzing the measures of quality to identify a selected set of groups having a minimum number of groups such that a measure of processing performance obtained at least in part from the associated measure of quality is higher than a threshold; and

20 (d) processing each group of blocks in the selected set of groups according to the associated set of one or more control parameters to generate an output signal representing contents of the input signal and representing the associated set of control parameters for each group in the selected set.

25 2. The method of claim 1 wherein the blocks comprise time-domain samples of audio information.

30 3. The method of claim 1 wherein the blocks comprise frequency-domain coefficients of audio information.

4. The method of claim 1 wherein at least one pair of blocks in the groups having more than one block have content representing audio information in time intervals that

are adjacent to one another or overlap one another.

5. The method of claim 1 that comprises:

obtaining two or more measures of cost, each measure of cost affiliated
with a set of groups of blocks, wherein the measure of cost represents an amount
of resources needed to process the blocks in the affiliated set according to the
associated set of control parameters;

wherein the measure of processing performance is obtained in part from the measure of
cost affiliated with the selected set.

6. The method of claim 1 or 5 wherein the analyzing is performed in one or more
iterations of an iterative process to determine one or more sets of groups that are not
candidates for the selected set and excludes analyzing these one or more sets in
subsequent iterations of the process.

7. The method of claim 1 or 5 wherein the selected set is identified by an iterative
process that comprises:

determining a second measure of processing performance for pairs of
groups in an initial set of groups;

merging the pair of groups having a highest second measure of processing
performance to form a revised set of groups provided that the highest second
measure of processing performance is greater than a threshold, and determining
the second measure of processing performance for pairs of groups in the revised
set of groups; and

continuing the merging until no pair of groups in the revised set of groups
has a second measure of processing performance that is greater than the threshold,
wherein the revised set of groups is the selected set.

8. The method of claim 5 wherein the measures of cost are responsive to amounts
of data needed to represent the sets of control parameters in the encoded signal.

9. The method of claim 5 wherein the measures of cost are responsive to amounts
of computational resources needed to process the blocks of audio information.

10. An apparatus for processing blocks of audio information arranged in frames, each block having content representing a respective time interval of audio information, wherein the method comprises:

- 5 means for receiving an input signal conveying the blocks of audio information;
- means for obtaining two or more measures of quality such that:
 - (1) each set in a plurality of sets of groups of the blocks in a respective frame has an associated measure of quality,
 - 10 (2) each group has one or more blocks,
 - (3) each set of groups includes all blocks in the respective frame and no block is included in more than one group in each set, and
 - (4) the measure of quality represents excellence in results
 - 15 obtainable by processing each block in a respective group according to an associated set of one or more control parameters;
 - means for analyzing the measures of quality to identify a selected set of groups having a minimum number of groups such that a measure of processing performance obtained at least in part from the associated measure of quality is
 - 20 higher than a threshold; and
 - means for processing each group of blocks in the selected set of groups according to the associated set of one or more control parameters to generate an output signal representing contents of the input signal and representing the associated set of control parameters for each group in the selected set.

25 11. The apparatus of claim 10 wherein the blocks comprise time-domain samples of audio information.

30 12. The apparatus of claim 10 wherein the blocks comprise frequency-domain coefficients of audio information.

13. The apparatus of claim 10 wherein at least one pair of blocks in the groups having more than one block have content representing audio information in time intervals

that are adjacent to one another or overlap one another.

14. The apparatus of claim 10 that comprises:

means for obtaining two or more measures of cost, each measure of cost
5 affiliated with a set of groups of blocks, wherein the measure of cost represents an
amount of resources needed to process the blocks in the affiliated set according to
the associated set of control parameters;

wherein the measure of processing performance is obtained in part from the measure of
cost affiliated with the selected set.

15. The apparatus of claim 10 or 14 wherein the means for analyzing iteratively
analyzes to determine one or more sets of groups that are not candidates for the selected
set and excludes analyzing these one or more sets in subsequent iterations.

16. The apparatus of claim 10 or 14 wherein the means for analyzing performs its
analysis by:

determining a second measure of processing performance for pairs of
groups in an initial set of groups;

merging the pair of groups having a highest second measure of processing
20 performance to form a revised set of groups provided that the highest second
measure of processing performance is greater than a threshold, and determining
the second measure of processing performance for pairs of groups in the revised
set of groups; and

continuing the merging until no pair of groups in the revised set of groups
25 has a second measure of processing performance that is greater than the threshold,
wherein the revised set of groups is the selected set.

17. The apparatus of claim 14 wherein the measures of cost are responsive to
amounts of data needed to represent the sets of control parameters in the encoded signal.

18. The apparatus of claim 14 wherein the measures of cost are responsive to
amounts of computational resources needed to process the blocks of audio information.

19. A medium conveying a program of instructions that is executable by a device to perform a method for processing blocks of audio information arranged in frames, each block having content representing a respective time interval of audio information, wherein the method comprises:

- 5 (a) receiving an input signal conveying the blocks of audio information;
- (b) obtaining two or more measures of quality such that:
 - (1) each set in a plurality of sets of groups of the blocks in a respective frame has an associated measure of quality,
 - (2) each group has one or more blocks,
 - 10 (3) each set of groups includes all blocks in the respective frame and no block is included in more than one group in each set, and
 - (4) the measure of quality represents excellence in results obtainable by processing each block in a respective group
 - 15 according to an associated set of one or more control parameters;
 - (c) analyzing the measures of quality to identify a selected set of groups having a minimum number of groups such that a measure of processing performance obtained at least in part from the associated measure of quality is higher than a threshold; and
 - 20 (d) processing each group of blocks in the selected set of groups according to the associated set of one or more control parameters to generate an output signal representing contents of the input signal and representing the associated set of control parameters for each group in the selected set.

25 20. The medium of claim 19 wherein the blocks comprise time-domain samples of audio information.

21. The medium of claim 19 wherein the blocks comprise frequency-domain coefficients of audio information.

30

22. The medium of claim 19 wherein at least one pair of blocks in the groups having more than one block have content representing audio information in time intervals that are adjacent to one another or overlap one another.

23. The medium of claim 19 wherein the method comprises:

obtaining two or more measures of cost, each measure of cost affiliated
with a set of groups of blocks, wherein the measure of cost represents an amount
5 of resources needed to process the blocks in the affiliated set according to the
associated set of control parameters;

wherein the measure of processing performance is obtained in part from the measure of
cost affiliated with the selected set.

10 24. The medium of claim 19 or 23 wherein the analyzing is performed in one or
more iterations of an iterative process to determine one or more sets of groups that are not
candidates for the selected set and excludes analyzing these one or more sets in
subsequent iterations of the process.

15 25. The medium of claim 19 or 23 wherein the selected set is identified by an
iterative process that comprises:

determining a second measure of processing performance for pairs of
groups in an initial set of groups;

merging the pair of groups having a highest second measure of processing
20 performance to form a revised set of groups provided that the highest second
measure of processing performance is greater than a threshold, and determining
the second measure of processing performance for pairs of groups in the revised
set of groups; and

continuing the merging until no pair of groups in the revised set of groups
25 has a second measure of processing performance that is greater than the threshold,
wherein the revised set of groups is the selected set.

26. The medium of claim 23 wherein the measures of cost are responsive to
amounts of data needed to represent the sets of control parameters in the encoded signal.

30 27. The medium of claim 23 wherein the measures of cost are responsive to
amounts of computational resources needed to process the blocks of audio information.